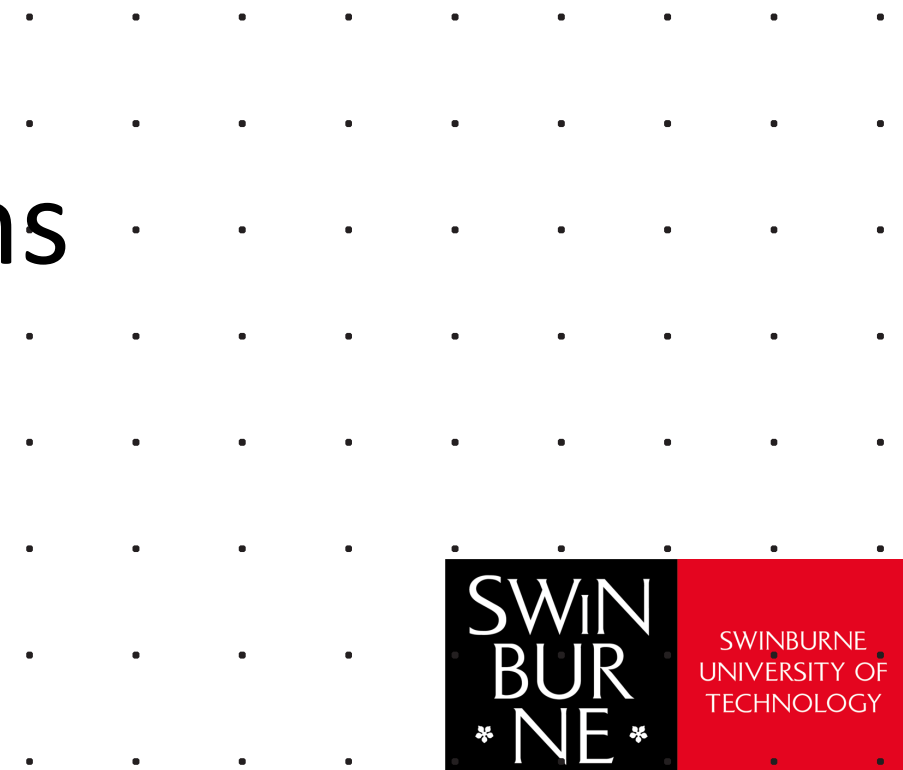


COS20007

Object-Oriented Programming

Topic 02 Part A

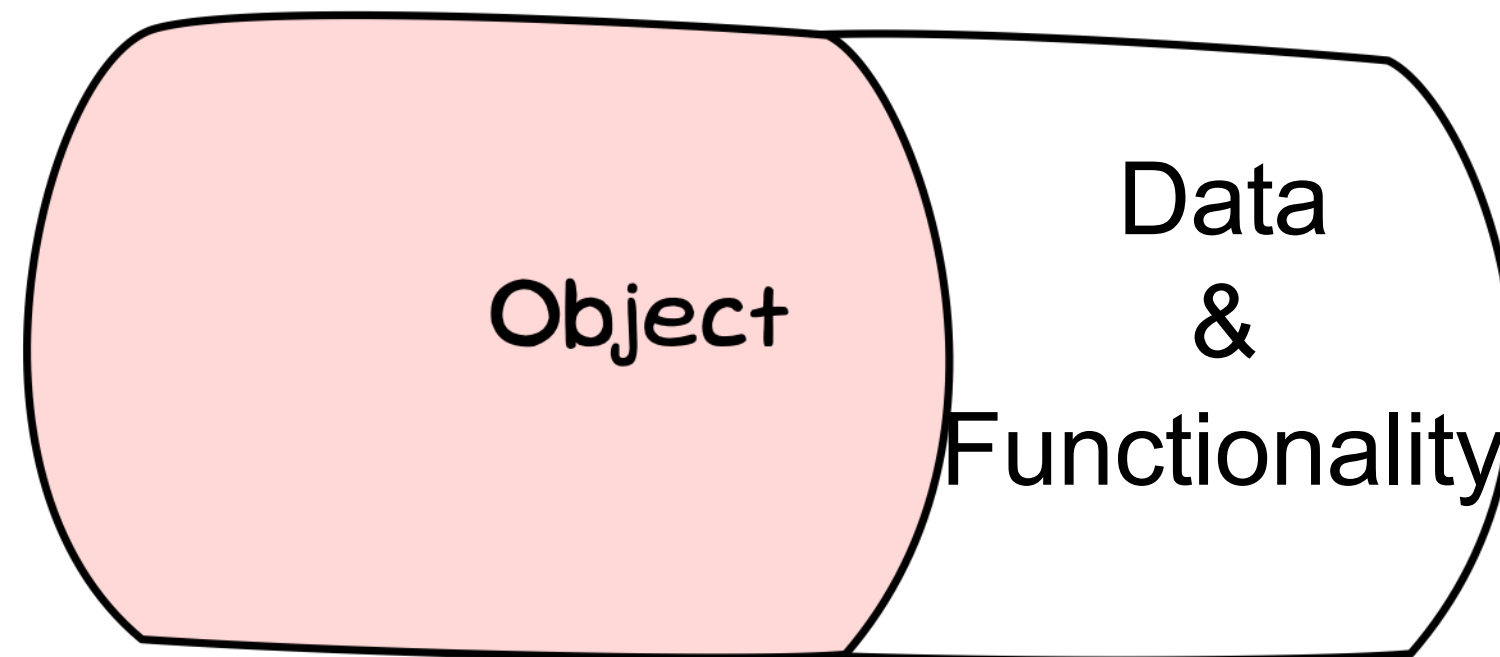
Framework Classes: Collections



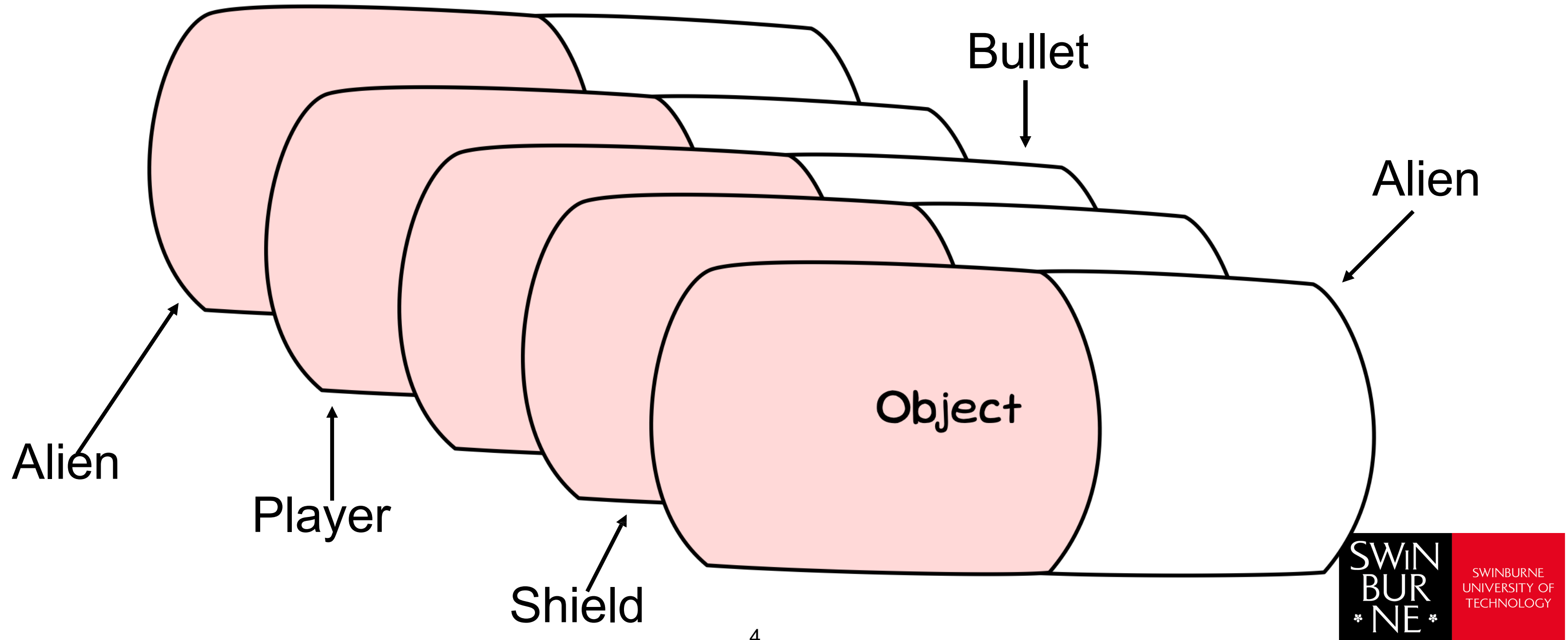
Learning Outcomes

- Recap Week 1's lecture
- .NET framework class overview
- Data Collections

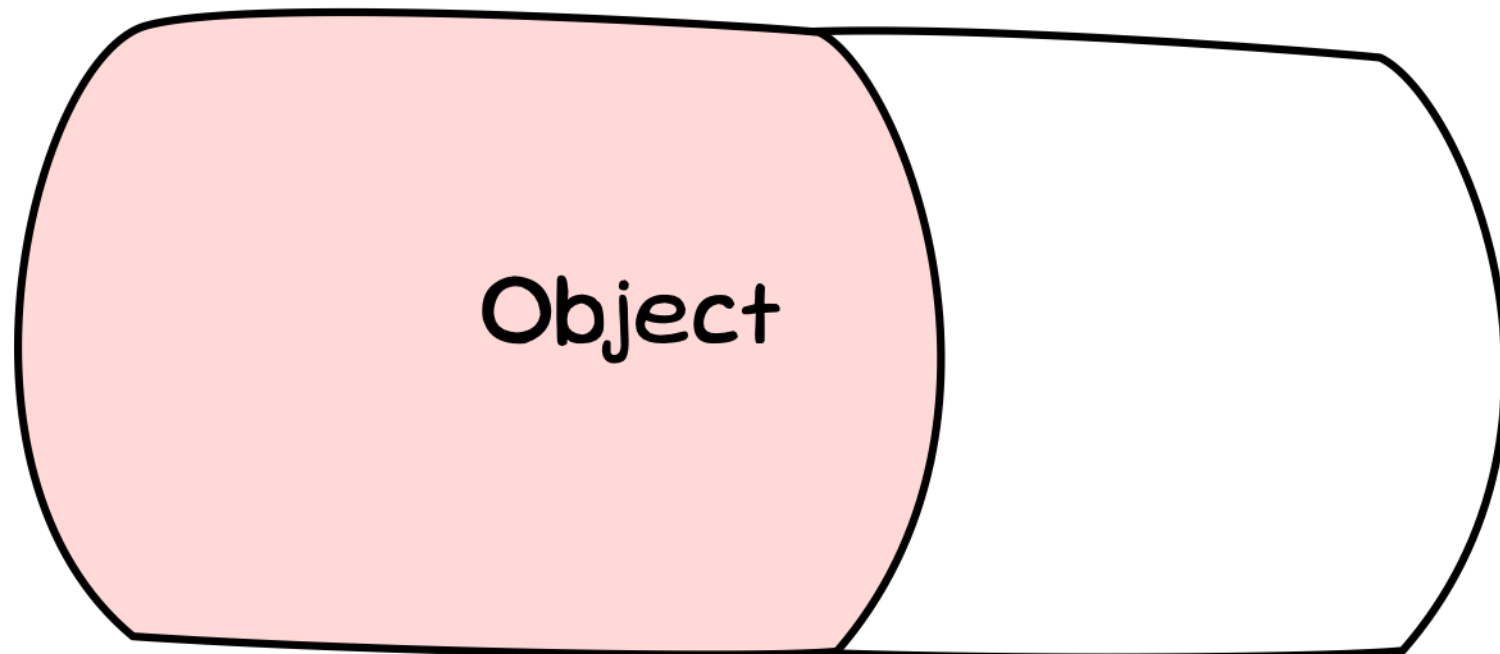
Objects know and can do things



Developers create programs using many objects that each perform a given role

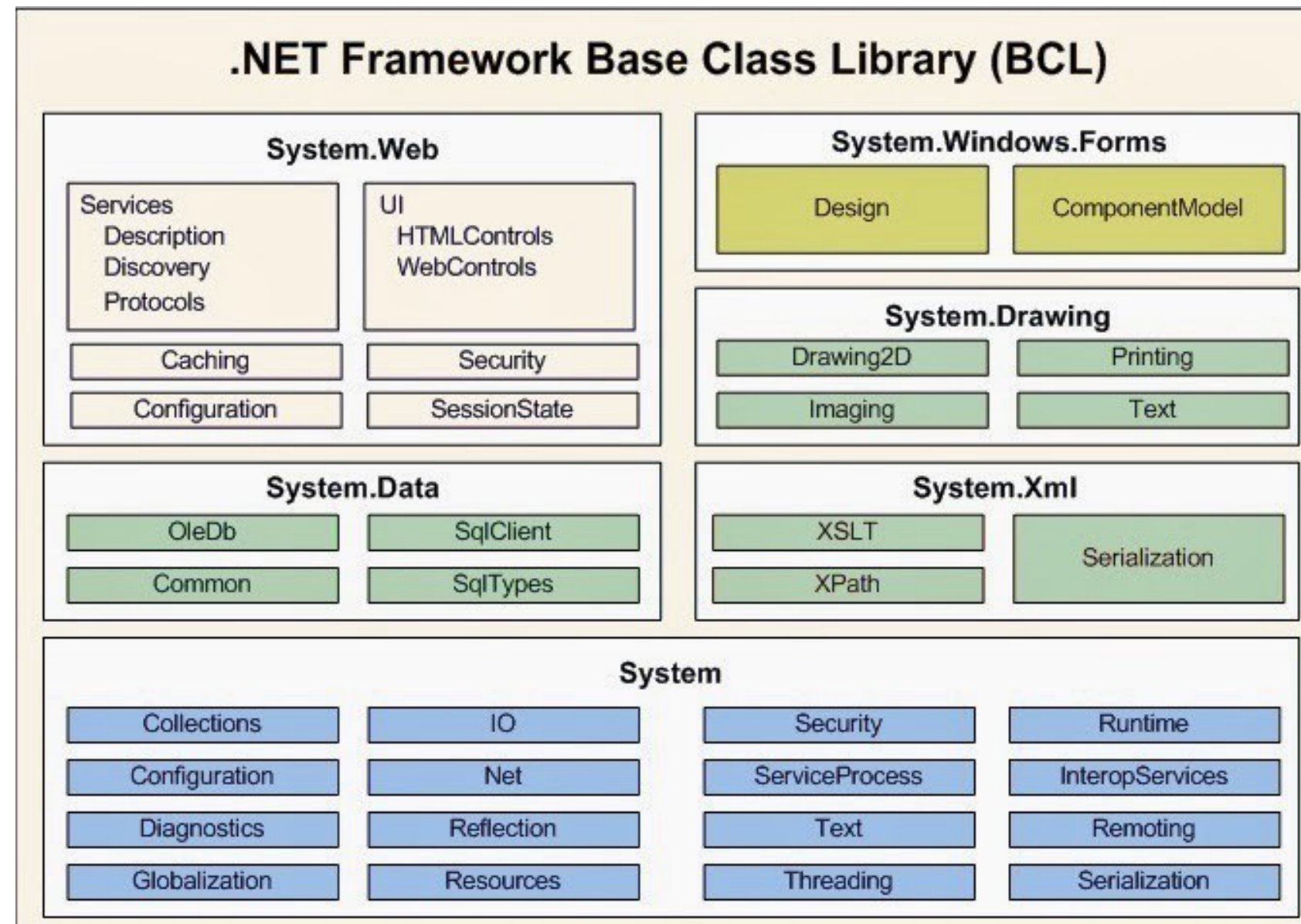


Many programs require the same kinds of objects — creating a range of common roles



List
Knows the objects it contains
Can add objects Can insert objects Can remove objects ...

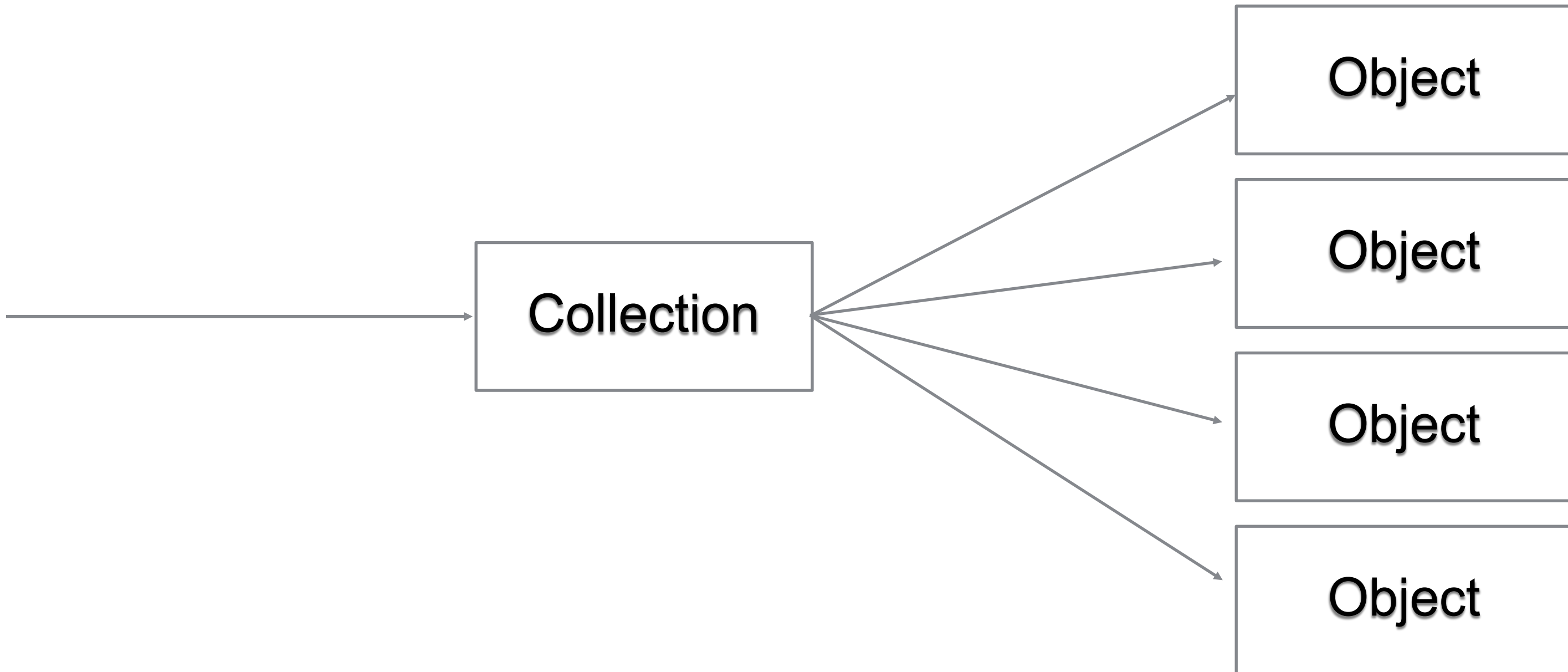
Reusable classes greatly help developers save time and avoid bugs



Use classes from the
language's class library to
provide common roles

Start using collection classes
to manage numbers of
objects

Collection objects know a number of objects, and manage access to these for you



Use different collection types for different features based on how they store objects

List

Dictionary

Array

Index based access

Hash map

Key based access

Tell the collection the kind of data it will store

List $\langle T \rangle$

Array

Index based access

T = type of data in array

Dictionary $\langle K, V \rangle$

Hash map

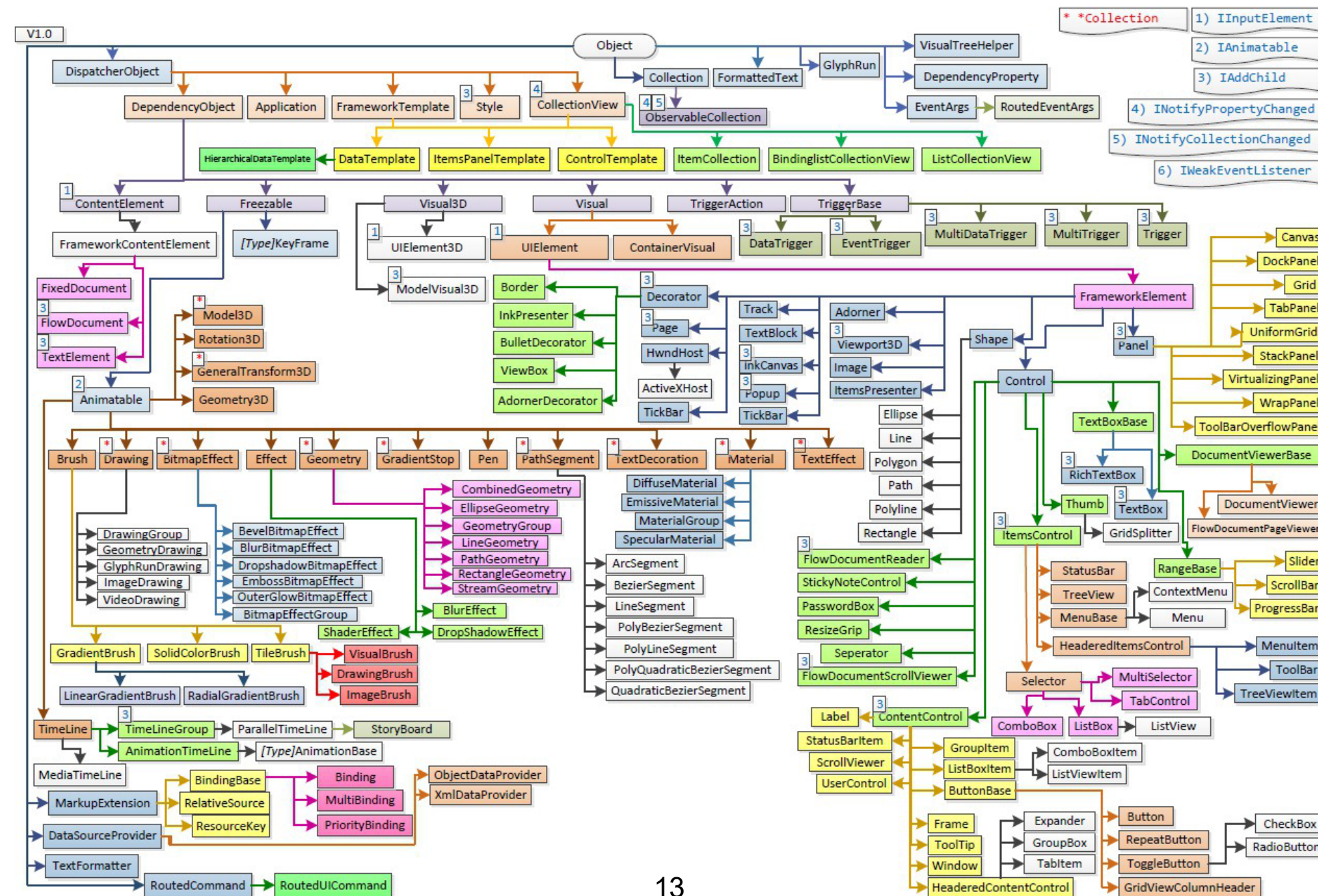
Key based access

K = type of data for key

V = type of data for value

Explore other aspects of the
class library as you develop
experience

Use visual objects from GUI frameworks to build user interfaces

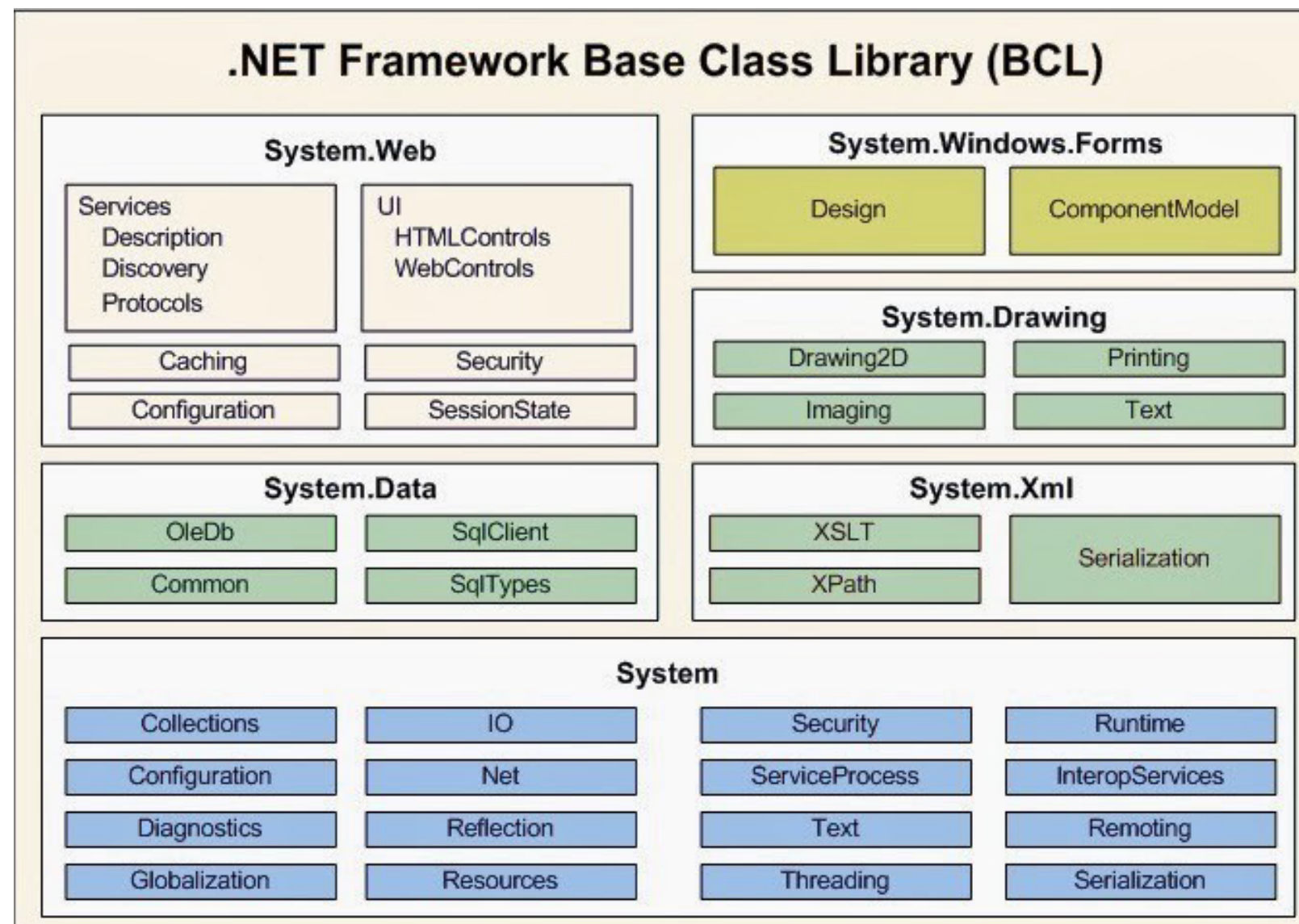


Data frameworks provide access to database and files



Order Table				
Order ID	Customer ID	OrderDate	Delivery Address	Status
12734	32762	2007/01/01	10 My Place, My Town, My Country 1234	Awaiting Payment
12735	18254	2007/01/01	11 My Place, My Town, My Country 1234	Shipped

... and the rest. Frameworks cover an extensive range of features.



Take away message

- .NET framework comes up with many useful classes. Do not invent the things you can use from class library.
- Those classes should typically provide same functionalities across different OOP languages
- List container is different from Dictionary. It is up to your design requirement.